What is claimed is:

CLAIMS

1. A method for detecting at least one possibly shorted printhead in a printer having first and second printheads in parallel which are supplied a voltage from the output of a voltage source, wherein the method comprises the steps of:

a) obtaining a calibration resistor having a resistance which, when placed in parallel to the voltage source, is equivalent to a predetermined maximum leakage current of a single non-shorted printhead in a quiescent state;

b) disposing the calibration resistor and a capacitance load in parallel across the output of the voltage source to define a first circuit;

c) with the first and second printheads electrically isolated from the first circuit, determining a first decay time for the first-circuit voltage across the capacitance load to reach a second voltage from a first voltage after the voltage source is disconnected from the first circuit;

d) determining a second decay time which is shorter than the first decay time;

d) disposing the first and second printheads and the capacitance load in parallel across the output of the voltage source to define a second circuit;

e) with the calibration resistor electrically isolated from the second circuit and with the first and second printheads in a quiescent state, determining the second-circuit voltage across the capacitance load at the second decay time after the voltage source is disconnected from the second circuit; and

g) indicating at least one possibly shorted printhead of the first and second printheads when the second-circuit voltage at the second decay time is less than the second voltage.

2. The method of claim 1, wherein the second decay time is determined to be equal to the decay time for the first circuit voltage to reach the second voltage when the calibration resistor in the first circuit is replaced by a resistor having an equivalent resistance to the resistance of two calibration resistors connected in parallel.

3. The method of claim 1, wherein the second decay time is determined to be in a range extending from 70% to 90% of the first decay time.

4. The method of claim 3, wherein the second decay time is determined to be 80%, plus or minus 2%, of the first decay time.

5. The method of claim 1, wherein the voltage source is a printhead regulator.

6. The method of claim 1 also for detecting when the first printhead is a shorted printhead, and also including when step g) indicates at least one possibly shorted printhead, the steps of:

h) disposing the first printhead and the capacitance load in parallel across the output of the voltage source to define a third circuit;

i) with the calibration resistor and the second printhead electrically isolated from the third circuit and with the first printhead in a quiescent state, determining the third-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the third circuit; and

j) indicating that the first printhead is a shorted printhead when the third-circuit voltage at the first decay time is less than the second voltage.

7. The method of claim 6, also for detecting when the second printhead is a shorted printhead, and also including the steps of:

k) disposing the second printhead and the capacitance load in parallel across the output of the voltage source to define a fourth circuit;

l) with the calibration resistor and the first printhead electrically isolated from the fourth circuit and with the second printhead in a quiescent state, determining the fourth-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the fourth circuit; and

m) indicating that the second printhead is a shorted printhead when the fourth-circuit voltage at the first decay time is less than the second voltage.

8. The method of claim 1, wherein the second voltage is equal to substantially 36.7% of the first voltage.

9. The method of claim 1, wherein the printer is an inkjet printer, and wherein the first and second printheads are inkjet printheads.

10. A method for detecting at least one possibly shorted printhead in a printer having N printheads in parallel which are supplied a voltage from the output of a voltage source, wherein the method comprises the steps of:

a) obtaining a calibration resistor having a resistance which, when placed in parallel to the voltage source, is equivalent to a predetermined maximum leakage current of a single non-shorted printhead in a quiescent state;

b) disposing the calibration resistor and a capacitance load in parallel across the output of the voltage source to define a first circuit;

c) with the N printheads electrically isolated from the first circuit, determining a first decay time for the first-circuit voltage across the capacitance load to reach a second voltage from a first voltage after the voltage source is disconnected from the first circuit;

d) determining a second decay time which is shorter than the first decay time;

e) disposing the N printheads and the capacitance load in parallel across the output of the voltage source to define a second circuit;

f) with the calibration resistor electrically isolated from the second circuit and with the N printheads in a quiescent state, determining the second-circuit voltage across the capacitance load at the second decay time after the voltage source is disconnected from the second circuit; and

g) indicating at least one possibly shorted printhead of the N printheads when the second-circuit voltage at the second decay time is less than the second voltage.

11. A method for detecting at least one possibly shorted printhead in a printer having first and second printheads in parallel which are supplied a voltage from the output of a voltage source, wherein the method comprises the steps of:

a) obtaining a calibration resistor having a resistance which, when placed in parallel to the voltage source, is equivalent to a predetermined maximum leakage current of a single non-shorted printhead in a quiescent state;

b) disposing the calibration resistor and a capacitance load in parallel across the output of the voltage source to define a first circuit;

c) with the first and second printheads electrically isolated from the first circuit, determining a first decay time for the first-circuit voltage across the capacitance load to reach a second voltage from a first voltage after the voltage source is disconnected from the first circuit;

d) determining a third voltage which is less than the second voltage;

e) disposing the first and second printheads and the capacitance load in parallel across the output of the voltage source to define a second circuit;

f) with the calibration resistor electrically isolated from the second circuit and with the first and second printheads in a quiescent state, determining the second-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the second circuit; and

g) indicating at least one possibly shorted printhead of the first and second printheads when the second-circuit voltage at the first decay time is less than the third voltage.

12. The method of claim 11, wherein the third voltage is determined to be equal to the first circuit voltage at the first decay time when the calibration resistor in the first circuit is replaced by a resistor having an equivalent resistance to the resistance of two calibration resistors connected in parallel.

13. The method of claim 1, wherein the third voltage is determined to be in a range extending from 70% to 90% of the first voltage.

14. The method of claim 13, wherein the third voltage is determined to be 80%, plus or minus 2%, of the first voltage.

15. The method of claim 11, wherein the voltage source is a printhead regulator.

16. The method of claim 11 also for detecting when the first printhead is a shorted printhead, and also including when step g) indicates at least one possibly shorted printhead, the steps of:

h) disposing the first printhead and the capacitance load in parallel across the output of the voltage source to define a third circuit;

i) with the calibration resistor and the second printhead electrically isolated from the third circuit and with the first printhead in a quiescent state, determining the third-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the third circuit; and

j) indicating that the first printhead is a shorted printhead when the third-circuit voltage at the first decay time is less than the second voltage.

17. The method of claim 16, also for detecting when the second printhead is a shorted printhead, and also including the steps of:

k) disposing the second printhead and the capacitance load in parallel across the output of the voltage source to define a fourth circuit;

l) with the calibration resistor and the first printhead electrically isolated from the fourth circuit and with the second printhead in a quiescent state, determining the fourth-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the fourth circuit; and

m) indicating that the second printhead is a shorted printhead when the fourth-circuit voltage at the first decay time is less than the second voltage.

18. The method of claim 11, wherein the second voltage is equal to substantially 36.7% of the first voltage.

19. The method of claim 11, wherein the printer is an inkjet printer, and wherein the first and second printheads are inkjet printheads.

20. A method for detecting at least one possibly shorted printhead in a printer having N printheads in parallel which are supplied a voltage from the output of a voltage source, wherein the method comprises the steps of:

a) obtaining a calibration resistor having a resistance which, when placed in parallel to the voltage source, is equivalent to a predetermined maximum leakage current of a single non-shorted printhead in a quiescent state;

b) disposing the calibration resistor and a capacitance load in parallel across the output of the voltage source to define a first circuit;

c) with the N printheads electrically isolated from the first circuit, determining a first decay time for the first-circuit voltage across the capacitance load to reach a second voltage from the a voltage after the voltage source is disconnected from the first circuit;

d) determining a third voltage which is less than the second voltage;

e) disposing the N printheads and the capacitance load in parallel across the output of the voltage source to define a second circuit;

f) with the calibration resistor electrically isolated from the second circuit and with the N printheads in a quiescent state, determining the second-circuit voltage across the capacitance load at the first decay time after the voltage source is disconnected from the second circuit; and

g) indicating at least one possibly shorted printhead of the N printheads when the second-circuit voltage at the first decay time is less than the third voltage.